UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,058	04/27/2001	Ian Cooper	D1815-00025 DIV1	3991

7590 02/25/2003

DUANE, MORRIS & HECKSCHER LLP
One Liberty Place
Philadelphia, PA 19103-7396

EXAMINER
RUDDOCK, ULA CORINNA

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 02/25/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/844,058	COOPER ET AL.	
	Examiner	Art Unit	
	Ula C Ruddock	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *02 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-9 and 36-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-9 and 36-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The Examiner has carefully considered Applicant's amendment and accompanying remarks filed December 2, 2002. It should be noted that newly added claims 14-17 have been renumbered as claims 36-39, according to Rule 1.126. Furthermore, the rejection to Cho et al. (US 6,183,835) has been overcome.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-9 and 14-17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has amended claims 1 and 8 to read that "prior to formation of the open mesh said alkali-resistant thermoplastic material is applied to said strands to provide a substantially continuous coating of said alkali-resistant thermoplastic material about said strands. This amendment is considered to be new matter because there is no support in the specification for the amendment to the claims.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 39 recites the limitation "said olefin copolymers" in line 1. There is insufficient antecedent basis for this limitation in the claim. It appears as though the claim should be dependent upon claim 4. Correction is required.

Claim Rejections - 35 USC § 103

7. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (US 5,763,043). Porter et al. disclose an open grid fabric for reinforcing wall systems (abstract). The strands of the open grid fabric can be coated with a resin that confers properties to the reinforcement fabric such as alkali resistance (col 5, ln 54-67). Polyvinylidene chloride is an example of a resin used on the fabric(col6, ln 11-14). The rovings can be fiberglass (claim 10). Furthermore, the term rovings refers to bundles of filaments (col 4, ln 13-15). Preferably, there are 1.5 ends to 12 ends per inch in each of the warp and weft directions (col 7, ln 9-15). The warp and weft strands have a linear density of 33 to 2200 Tex (col 7, ln 16-18). While Porter et al. fail to teach that the fiber strands are covered by a thermoplastic material prior to formation of the open mesh, it would have been obvious to one having ordinary skill in the art to have coated the fiber strands before formation of the open mesh, motivated by the desire to create a fabric with increased structural integrity.

8. Claims 1-5, 7, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Newman et al. (US 6,054,205). Newman et al. disclose a glass fiber facing sheet for engineered

surfaces such as cement boards. The glass fiber facing sheet comprises an open mesh glass scrim (abstract). The transverse yarns and the longitudinal yarns of the glass scrim are bonded at their crossover points by a polymeric binder (col 5, ln 33-38). The open mesh glass scrim is formed by a plurality of intersecting, continuous multifilament glass yarns (col 4, ln 52-54). It should be noted that the Examiner is equating the multifilament glass yarns of Newman et al. to be the same as the bundled glass fibers disclosed in the present invention in claim 6. With regard to claim 2, typically, the coating is hardened on the scrim by heating the coated glass scrim to set the polymeric binder that would inherently fuse the thermoplastic material at areas where the yarns intersect and would also provide a continuous coating of the thermoplastic material on the yarns. With regard to claim 4, the polymeric binder is an alkali resistant thermoplastic polymer (col 5, ln 46-47), such as polyvinylidene chloride (col 5, ln 54-56). With regard to claim 5, the scrim has a pick count of 10 by 10, or 10 strands per inch in each direction (col 5, ln 25-27).

With regard to claim 7, Newman et al. disclose the claimed invention except for the teaching that the mesh is no greater than about 0.020 inch in thickness. It should be noted that changing the mesh thickness is a result effective variable. An increase in mesh thickness directly affects the strength of a mesh. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a scrim having a mean thickness of no greater than about 0.020 inch in thickness since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch,* 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have optimized the thickness of the mesh, motivated by the desire to obtain a mesh with increased strength.

While Newman et al. fail to teach that the fiber strands are covered by a thermoplastic material prior to formation of the open mesh, it would have been obvious to one having ordinary skill in the art to have coated the fiber strands before formation of the open mesh, motivated by the desire to create a fabric with increased structural integrity.

9. Claim 6 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Newman et al. (US 6,054,205), as set forth above, in view of Porter et al. (US 5,763,043). Newman et al. disclose the claimed invention except for the specific teaching that the strands have a linear density of about 33 to about 300 tex. Porter et al. (US 5,763,043) disclose an open grid fabric for reinforcing wall systems (abstract). The strands of the open grid fabric can be coated with a resin that confers properties to the reinforcement fabric such as alkali resistance (col 5, ln 54-67). Polyvinylidene chloride is an example of a resin (col6, ln 11-14). The rovings can be fiberglass (claim 10). Preferably, there are 1.5 ends to 12 ends per inch in each of the warp and weft directions (col 7, ln 9-15). The warp and weft strands have a linear density of 33 to 2200 Tex (col 7, ln 16-18). It would have been obvious to one having ordinary skill in the art to have used Porter's glass strands with a linear density of 33 to 2200 Tex in place of Newman's glass yarns, motivated by the desire to obtain a fiber facing sheet with increased durability and strength.

10. Claims 3 and 8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Newman et al. (US 6,054,205), in view of Paulson et al. (US 6,171,984). Newman et al. disclose a glass fiber facing sheet for engineered surfaces such as cement boards. The glass fiber facing sheet comprises an open mesh glass scrim (abstract). The transverse yarns and the longitudinal yarns

of the glass scrim are bonded at their crossover points by a polymeric binder (col 5, ln 33-38). The open mesh glass scrim is formed by a plurality of intersecting, continuous multifilament glass yarns (col 4, ln 52-54). It should be noted that the Examiner is equating the multifilament glass yarns of Newman et al. to be the same as the bundled glass fibers disclosed in the present invention in claim 6. With regard to claim 3, the coating is hardened on the scrim by heating the coated glass scrim to set the polymeric binder that would inherently fuse the thermoplastic material at areas where the yarns intersect and would also provide a continuous coating of the thermoplastic material on the yarns. With regard to claim 4, the polymeric binder is an alkali resistant thermoplastic polymer (col 5, ln 46-47), such as polyvinylidene chloride (col 5, ln 54-56). With regard to claim 5, the scrim has a pick count of 10 by 10, or 10 strands per inch in each direction (col 5, ln 25-27).

While Newman et al. fail to teach that the fiber strands are covered by a thermoplastic material prior to formation of the open mesh, it would have been obvious to one having ordinary skill in the art to have coated the fiber strands before formation of the open mesh, motivated by the desire to create a fabric with increased structural integrity.

Furthermore, Newman et al. fail to disclose the specific teaching that the thermoplastic material is fibrous and that the elasticity fiber strands comprise E-glass and that the core comprises one of the fibers listed in claim 37.

Paulson et al. (US 6,171,984) disclose geosynthetic materials that can be used for earthen reinforcement (abstract). The fibers comprising with warp and/or weft strands can include fibers formed from inorganic and polymeric materials (col 9, ln 11-14). Polymeric materials can be

polyolefins (col 9, ln 27) and inorganic materials can be glass fibers, (col 10, ln 5-6), specifically E-glass fibers (col 10, ln 11-12). Furthermore, one or more warp strands, weft strands, or both, may be formed from strands wherein each strands is comprised of a combination of two or more materials, for examples a strands comprised of both polymeric fibers and non-polymeric fibers (col 10, ln 28-64). Where the polymeric fibers and non-polymeric fibers are dispersed unevenly throughout the strands, either may form a core material surrounded by the other. In other words, the non-polymeric ,e.g. glass strands, may be grouped to formed a core material with the polymeric strands disposed about the core material (col 11, ln 1-6). In yet another embodiment, a portion of the warp strands, weft strands, or both may comprise strands wherein each strand is formed of a core material, which core material may be formed from a combination of polymeric fibers and non-polymeric fibers, e.g. glass fibers, or from a core material comprised of all of the same type of fibers, e.g. glass fiber which core material is then overcoated with a polymeric coating (col 11, ln 6-13). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Paulson's teaching of glass strands forming a core with polymeric strands disposed about the core materials on the glass fiber facing sheet of Newman et al. having a thermoplastic binder coated upon it, motivated by the desire to obtain a glass fiber facing sheet with improved resistance to chemical degradation. With regard to claims 36 and 37, it also would have been obvious to use Paulson's E-glass fibers and polyolefin fibers in the fiber facing sheet of Newman et al., motivated by the desire to obtain a glass fiber facing sheet that can be subjected to initial or a sustained tensile load. With regard to claim 38, the method of forming an article is not

germane to the issue of patentability of the article itself; therefore, this claim has been given no patentable weight.

11. Claim 9 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Newman et al. (US 6,054,205), and Paulson et al. (US 6,171,984), as applied to claim 8 above, and further in view of Fangeat et al. (US 4,967,548) or Hourahane (US 6,335,087). Newman et al. and Paulson et al. disclose the claimed invention except for the specific teaching that fibrous thermoplastic material is friction spun on said strands.

Fangeat et al. (US 4,967,548) disclose a yarn comprising a core consisting of an inorganic filaments surrounded by fibers (abstract) via an open end spinning process (col 2, ln 24). Glass monofilaments are used as the core (col 2, ln 51). It should be noted that it is well known in the textile art that open end spinning is equivalent to the friction spinning process of the present invention. Hourahane (US 6,335,087) disclose a yarn for use in a cement mortar matrix that includes a core and a multitude of staple fibers forming a layer which envelopes the core (abstract). The surface layer of staple fibers is preferably supplied to the high tenacity core by the process known as friction spinning (col 3, ln 47-50). It would have been obvious to one having ordinary skill in the art to have used the friction spinning process disclosed by Fangeat et al. or Hourahane on Newman's and Paulson's coated glass scrim, motivated by the desire to obtain a glass scrim with increased flexibility.

12. Claim 10 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Newman et al. (US 6,054,205), as set forth above, in view of Boissonnat et al. (US 5,451,355). Newman et al. disclose the claimed invention except for the specific teaching that the thermoplastic material is co-

extruded with the glass strands to provide a continuous coating about said strands. Boissonnat et al. (US 5,451,355) disclose glass filaments (col 3, ln 5-6) that are sheathed by a layer of thermoplastic organic material. This covering can be obtained by extrusion (col 1, ln 50-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Boissonnat's extrusion method on Newman's coated glass scrim, motivated by the desire to obtain a glass scrim that is completely coated by the polymeric binder.

Response to Arguments

13. Applicant's arguments filed December 2, 2002, have been fully considered but they are not persuasive for the reasons set forth. Applicant argues that neither Porter et al. nor Newman et al. disclose that the fiber strands are covered by a thermoplastic material prior to formation of the open mesh. As shown above, this limitation does not distinguish the present invention from the prior art because both result in the same final product having no difference.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C Ruddock whose telephone number is 703-305-0066. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

UCR
February 21, 2003

ELIZABETH M. COLE
PRIMARY EXAMINER